of the soldering patterns **5** and **6** are not covered with the resin layer **9** as shown in FIG. **3**, because the covering of the protruded ends **5***a* and **6***a* obstructs the discharge.

Now, an example of the formation of the discharge gap device with electrodes will be described.

A discharge gap device **10** shown in FIG. **4** is formed as follows: Conductor, namely, silver paste is printed on the surface **4***a* of the dielectric **4** by print-etching, and then hardened by baking.

In the discharge gap device **10**, the sides of the sliver paste portions which are confronted with each other are made zig-zag, thus providing five pairs of protrusions. Thus, protruded ends **11***a* and **12***a* are formed. The protruded ends **11***a* and **12***a* form the discharge gap unit **2**. Hence, discharge occurs between a number of protruded ends **11***a* and a number of protruded ends **12***a*, whereby the discharge is stable. Therefore, the burning of the discharge portions is less than in the case of only one pair of protruded ends. Further, the discharge gap device **10** is longer in service life.

In a discharge gap device **13** shown in FIG. **5**, the sides of conductors which are confronted with each other are made saw-teeth shaped, so that a number of pairs of protruded ends **14***a* and **15***a* are formed. These protruded ends **14***a* and **15***a* provide a number of discharge gaps. Hence, similarly as in the above-described discharge gap device **10**, the discharge is stable.

FIG. **6** is an electrical circuit diagram showing an example of the employment of the above-described discharge gap device **1** in a television set.

In the television set, the discharge gap unit **2** is interposed between the side of the commercial power source **16** and the side of the tuner **19** of the television set. The circuit of FIG. **6** is equal in fundamental arrangement to the above-described conventional circuit of FIG. **9**; therefore, in FIG. **6** parts corresponding functionally to those already described with reference to FIG. **9** are designated by the same reference numerals or characters.

As shown in FIG. **6**, the discharge gap device **1** is connected between the commercial power source **16** of the television set and the tuner **19**. Therefore, the discharge gap unit **2** of the discharge gap device **1** is normally held non-conductive; that is, the commercial power source **16** of the primary power source side A is insulated from the tuner **19** of the secondary power source side B.

Now, the prevention of a load circuit from damage at the time of ground discharge will be described.

In the case where, for instance because of the occurrence of ground discharge, high voltage is applied through the antenna (not shown) to the antenna input terminal **19***a* of the tuner **19**, the discharge gap unit **2** of the discharge gap device **1** connected to the tuner **19** becomes conductive through discharge, the high voltage is run to the commercial power source **16**. Hence, the high voltage is not run to the secondary power source side B of the product, which protects the load circuits from damage.

In the above-described embodiment, the discharge gap device **1** is interposed between the side of the commercial power source **16** of the television set and the side of the tuner **19**; however, the invention is not limited thereto or thereby. That is, as a countermeasure against ground discharge, the discharge gap device may be interposed between the circuit (secondary circuit) connected to the secondary power source side and the commercial power source, or between the power lines of the commercial power source.

The discharge gap device designed as described above have the following effects or merits:

The conductors, which are arranged spaced from each other, are normally electrically not connected to each other; however, upon application of over-voltage, discharge is caused to occur between the conductors so that the conductors are electrically connected to each other. Therefore, parts other than the discharge gap unit can be arranged on the side of the printed circuit board as the case may be. Accordingly, when it is required to change parts other than the discharge gap unit, it is not necessary to newly manufacture a discharge gap device. Furthermore, it is not necessary to mount a capacitor or resistor which is not used. This means a reduction in the number of components of the discharge gap device.

Since the resistor, which is in parallel with the discharge gap device, is formed on the printed circuit board, a resistor different in resistance may be employed with ease as the case may be.

Further, in the discharge gap device of the invention, upon application of over-voltage, discharge occurs between at least two conductors on the dielectric, so that two or more lead wires are made electrically connected to one another. Since discharge occurring between the conductors is caused on the dielectric, it is possible to discharge with ease when compared with the discharge in the air or between insulators.

What is claimed is:

1. A discharge gap device adapted to be mounted on a printed circuit board (PCB), comprising:

a dielectric having two opposing surfaces;

at least two lead wires each having a portion adapted to be attached to the printed circuit board and another portion attached to one surface of said dielectric;

at least two conductors which are connected to said lead wires and provided on said one surface of said dielectric; and

a resistor connected between said two lead wires in parallel with said discharge gap device without being directly attached to said at least two conductors or directly mounted on said dielectric, the other surface of said dielectric being free of conductive material to avoid shunting capacitance being formed across said at least two conductors and to prevent passage of high frequency components across the gap device,

wherein upon application of over-voltage, discharge is caused to occur between said conductors.

2. The discharge gap device as claimed in claim **1**, wherein said conductors are of solder.

3. The discharge gap device as claimed in claim **1**, wherein said conductors are electrodes, and said electrodes are spaced a predetermined distance from each other so that said electrodes are confronted with each other.

4. The discharge gap device as claimed in claim **3**, wherein said electrodes have protruded ends which are protruded towards each other.

5. The discharge gap device as claimed in claim **4**, wherein each of said electrodes has a plurality of protruded ends.

6. The mounting structure of the discharge gap device as claimed in claim **1**, wherein said discharge gap device is provided between a part which produces high voltage and a part which absorbs the high voltage.

7. The discharge gap device as claimed in claim **1**, wherein said lead wires are connected to said dielectric by welding solder, and the resultant soldering regions are employed as said conductors.